the same time maintain world trade.

These 2 things are not only incompatible but impossible of attainment.

While so-called progressives and new dealers have been frantically demanding that trade barriers between this and other countries be lowered or removed, they have been madly striving to increase or hold up the price level and manufacturing costs in this country far above that of neighboring countries, and while they have been limiting production in this country, they have been demanding that products of other lower price level countries be allowed to come in free into this country.

No more insane or destructive policy could be conceived by mortal man or an incarnate fiend bent on destroying the country and all of its inhabitants in the shortest possible time.

This policy cannot be excused on the plan that it is an experiment for the reason that every sane and intelligent person knows that there can be but one result if this policy is long continued.

Either the United States of America will not long survive as a free and independent nation or it will revert to a second or third class nation with the greater part of the population living in degradation, as many of them are now doing in all the newer additions in all cities and towns in the United States, with the possible exception of Washington, D. C., Muscle Shoals, Boulder Dam, Grand Coulee, Bonneville, and other tax supported government project communities of the country.

Very truly yours,
E. R. CUNNINGHAM
(A'96, M'14, and member for life)
(726 S. W. Salmon St., Portland, Ore.)

A Method of Electrical Prospecting

To the Editor:

I have read the article "Methods of Electrical Prospecting" by Donald G. Fink in the March 1935 issue of ELECTRICAL ENGINEERING, pages 293–6, with great interest.

In connection with it, your readers may be interested in knowing that an instrument using the "commutated d-c method" described on page 295 of that issue is commercially available.

I have been licensed to build an instrument of this type—the so-called Gish-Rooney apparatus—under patents held by the Carnegie Institution of Washington. The U.S. Geological Survey has been using my instruments very successfully in geological reconnaissance on dam sites.

There is an account of the application of the Gish-Rooney method to prospecting for road gravel, in the February 21, 1935, issue of the *Engineering News-Record*. Some of your readers may be interested in this.

I shall, of course, be glad to have questions concerning electrical prospecting referred to myself.

Very truly yours,
SHELLEY KRASNOW (A'32)
(Instrument Designer, 817 G Street, N. W., Washington, D. C.)

Personal Items

A. E. KENNELLY (A'88, M'99, F'13, HM'33, Life Member and past-president) professor emeritus of electrical engineering, Harvard University and Massachusetts Institute of Technology, Cambridge, Mass., has been elected honorary president of the U.S. National Committee of the International Electrotechnical Commission. Doctor Kennelly has been honorary secretary for many years and has served on the committees on rating of electrical machinery and as chairman of the committee on electrical and magnetic magnitudes and units. He served 2 terms as vice president of the Institute, 1892–94 and 1897–98, and was a manager 1894–97 and president 1898–1900. In 1933 he was awarded the Institute's Edison medal for his work in electrical science and engineering. Doctor Kennelly was appointed professor of electrical engineering at Harvard University in 1902, and became professor emeritus in 1930. He has served on the Institute's standards committee almost continuously since 1906 and on the research committee since 1920, as representative on the U.S. National Committee of the International Electrotechnical Commission since 1907, and as a member of the radio advisory committee of the Bureau of Standards since 1925, as well as on a number of others. He recently became chairman of the newly formed sectional committee on electric and magnetic magnitudes and units under the sponsorship of the electrical standards committee of the American Standards Association, which replaces the former special committee of the U.S. National Committee of the International Electrotechnical commission.

J. ALLEN JOHNSON (A'07, F'27, and president) chief electrical engineer, Buffalo, Niagara and Eastern Power Corporation, Buffalo, N. Y., has been awarded the 1934 A.I.E.E. national prize for best paper in engineering practice as co-author with R. T. Henry (A'24, M'29, F'33) of the paper "Fundamentals of Design of Electrical Energy Delivery Systems." Mr. Johnson is a native of Massachusetts, and was graduated from Worcester Polytechnic Institute in 1905 with the degree of bachelor of science in electrical engineering. He was then employed by the Ontario Power Company at Niagara Falls, Ont., and was appointed electrical engineer in 1912. This company was purchased by the Hydro-Electric Power Commission of Ontario in 1917, and Mr. Johnson added the duties of assistant engineer. The following year he became chief engineer of the Cliff Electrical Distributing Company and Hydraulic Power Company at Niagara Falls, N. Y., which in a consolidation that year became The Niagara Falls Power Company with Mr. Johnson as electrical engineer. He held this position during the time of rapid development of Niagara power, and since 1929 has been in his present office. A number of papers have been contributed to the Institute by Mr. Johnson, who received honorable mention in the 1933 A.I.E.E. prize awards for best paper in engineering practice. Since 1905, when he was the first chairman of the Worcester Polytechnic Institute Branch, Mr. Johnson has been active in Institute affairs, serving on a number of committees and as a director 1928–32, and a vice president 1932–34. As president he is chairman of the executive committee, and he is also a member of the Edison medal and Charles A. Coffin fellowship and research fund committees, representative on the American Engineering Council assembly, and representative on the John Fritz Medal Board of Awards. A signal honor was recently conferred on Mr. Johnson by Worcester Polytechnic Institute, in the awarding to him of the honorary degree of doctor of engineering on June 14, 1935. In Mr. Johnson's absence, caused by illness, the diploma and doctor's hood were received for him by his son, a member of the graduating class. The citation for Mr. Johnson's degree was, in part: "A leader in the development and application of electrical energy from Niagara Falls, he has for years directed power production at that grand center. From a humble private in the army of electrical engineers . . . . . he has risen to high command, to be an authority in his chosen field . . . . . And this year his fellows in the national American Institute of Electrical Engineers have conferred upon him the highest office within their gift, the presidency of that great organization. . . . ."

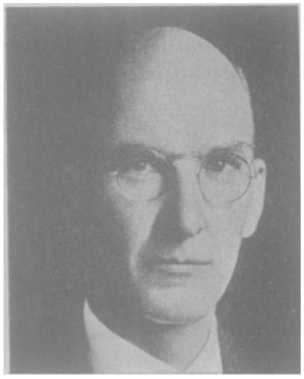
R. T. HENRY (A'24, M'29, F'33) electrical engineer in charge of design, Buffalo, Niagara and Eastern Power Corporation, Buffalo, N. Y., with J. Allen Johnson (A'07, F'27, and president) co-author of the paper "Fundamentals of Design of Electrical Energy Delivery Systems," has been awarded the 1933 A.I.E.E. national prize for best paper in engineering practice. Mr. Henry was born at Stronghurst, Ill., and attended schools at Niagara Falls, N. Y., and the General Electric engineering school at Lynn, Mass., where he was engaged as a draftsman in 1908, leaving a year later to join the Niagara Falls Hydraulic Power and Manufacturing Company at Niagara Falls, N. Y. In 1912 he became assistant electrical engineer with the Hooker Electrochemical Company in Niagara Falls, and shortly afterward was employed by the Edison Illuminating Company in Detroit, Mich. In 1914 he returned to Niagara Falls as assistant superintendent of the Niagara Electric Service Corporation, where he was concerned with distribution systems. From 1918 to 1929 he was assistant electrical engineer for The Niagara Falls Power Company, one of a group of companies in the Buffalo, Niagara and Eastern Power Corporation in which he has had his present title since 1929. Mr. Henry served on the Institute's protective devices committee 1931–35, being chairman 1932–34, which automatically made him a member of the technical program committee during those years. During the year 1929–30 he was chairman of the Niagara Frontier Section.

H. A. Affel (A'18, M'23) engineer, Bell Telephone Laboratories, Inc., New York, N. Y., has received honorable mention with co-authors R. W. Chesnut (A'19) and R. H. Mills (A'33) of the paper "Auditory Perspective—Transmission Lines" in the 1934 A.I.E.E. national prize awards for best paper in engineering practice. Mr. Affel graduated from Massachusetts Institute of Technology with the degree of bachelor of science in electrical engineering in 1914, and for 2 years he was research assistant in electrical engineering. From 1916 to 1934 he was employed in the engineering and development and research departments of the American Telephone and Telegraph Company at New York, N. Y., being transferred to the Bell Telephone Laboratories in 1934. His early work was concerned chiefly with investigation of high frequency phenomena on wires and the development of multiplex carrier telephone and telegraph systems. More recently his work has included the broader phases of long distance telephone transmission, repeaters, program circuits, and vacuum tubes, and a number of patents have been issued to him. Mr. Affel has previously presented papers to the Institute, and has addressed several Sections recently on the subject "Precise Frequency and Time Over Wires."

R. W. Chesnut (A'19) carrier telephone engineer, Bell Telephone Laboratories, Inc., New York, N. Y., with his co-authors H. A. Affel (A'18, M'23) and R. H. Mills (A'33) has received honorable mention in the 1934 A.I.E.E. national prize awards for best paper in engineering practice. Mr. Chesnut was born at Kiowa, Kan., in 1892 and was graduated from Harvard University with the degree of bachelor of arts in 1916. He then went to Europe where he spent several years, first as a traveling fellow, from Harvard University, then with the bureau of war inventions of the French Government at Paris engaged on the application of acoustics to war problems, and last as a lieutenant in the U.S. Signal Corps, where he had charge of the research and development of sound ranging of airplanes. Since 1920 Mr. Chesnut has been in the engineering department of the Western Electric Company and its successor, the Bell Telephone Laboratories. Most of his work has been on the development of carrier telephone and long wave radio systems, and a previous Institute paper on carrier telephone cable was prepared by him as a co-author. He is a member of the American Physical Society.

R. H. Mills (A'33) telephone engineer, Bell Telephone Laboratories, Inc., New York, N. Y., shares with his co-authors H. A. Affel (A'18, M'23) and R. W. Chesnut (A'19) honorable mention in the 1934 A.I.E.E. national prize awards for best paper in engineering practice. Mr. Mills, who was first elected an Associate in 1919, was born at Natick, Mass., and graduated from Massachusetts Institute of Technology in 1916 with the degree of bachelor of science. He was employed by the Western Union Telegraph Company as a cable engineer until 1918, when he joined the Western Electric Company in submarine detection work, later engaging in various transmission problems. The Bell Telephone Laboratories were formed in 1924, and since then Mr. Mills has been concerned with the development of selective electrical networks and with apparatus for carrier frequency communication systems.

C. F. Hirshfeld (A'05) chief of research department, Detroit Edison Company, Detroit, Mich., has received the 1934 A.I.E.E. national prize award for best paper in public relations and education for his paper "Engineers of the Next Generation." Doctor Hirshfeld was born at San Francisco, Calif., and studied at the University of California from which he received the degree of bachelor of science in electrical engineering in 1902. Three years later he received his master's degree in mechanical engineering at Cornell University, and in 1932 Rensselaer Polytechnic Institute conferred upon him the honorary degree of doctor of engineering. Between 1903 and 1914 he was successively instructor, assistant professor, and professor of mechanical engineering at Cornell University, at the same time carrying on a consulting practice. He has been chief of the research department of the Detroit Edison Company since 1913 and consulting engineer since 1919, and was chief engineer of the Electric Railway Presidents' Conference Committee of the American Electric Railway Association in 1930. He is the author of numerous papers and articles, including a previous Institute paper, and is a member of a number of societies, among them The American Society of Mechanical Engineers of which he has been a vice president. Doctor Hirshfeld was a member of the Institute's power generation committee 1922–31, of the standards committee 1923–30, and of the electrical machinery committee 1926–27, and has been chairman of Engineer's Council for Professional Development since its inception.



J. ALLEN JOHNSON

R. T. HENRY

C. F. HIRSHFELD

C. L. Dawes (A'12, M'15) associate professor of electrical engineering, Harvard University, Cambridge, Mass., has received honorable mention in the 1934 A.I.E.E. national prize awards for best paper in public relations and education for his paper "Encouraging Initiative in the Engineering Student." Professor Dawes last year received the 1933 A.I.E.E. North Eastern District prize for best paper. He was born at Somerville, Mass., and in 1909 received the degree of bachelor of science in electrical engineering at Massachusetts Institute of Technology, where he was an assistant until 1911. He then went to Harvard University as an instructor. For a time he was absent on leave to be professor of electrical engineering at the United States Naval Academy, and was an instructor at the Naval Aviation Ground School at Massachusetts Institute of Technology when it was combined with Harvard University from 1915 to 1919. From 1919 to 1931 he was assistant professor of electrical engineering at Harvard University, and for some years has been engaged in consulting work for a number of electrical industries. Several papers on engineering and educational subjects have been written by him.

F. W. Smith (A'05, M'12) president, New York Edison Company, and United Electric Light and Power Company, New York, N. Y., has been elected president of the Consolidated Gas Company of New York to succeed G. B. Cortelyou, who is retiring. Mr. Smith has had a long career in the electrical industry, having first entered it in 1880 when he was employed by the United States Illuminating Company, which subsequently became a part of the United Electric Light and Power Company. He was elected secretary of the latter in 1905, vice president in 1912, and was appointed general manager in 1916. This company was originally formed for the purpose of developing the a-c system, so that Mr. Smith has been actively identified with this development. In 1926 he was elected chairman of the board of directors of the New York and Queens Electric Light and Power Company, and in 1929 was elected president of the Brush Electric Illuminating Company. He was elected vice president of the New York Edison Company in 1931, and the following year became president of this company and of the United Electric Light and Power Company. In addition, he has served as director of a number of other companies. Mr. Smith is a member of the board of trustees of the Edison Electric Institute, a past-president of the National Electric Light Association, and a member of the Electrical Association of New York, New York Electrical Society, and other technical organizations.

J. R. MEADOR

H. S. BLACK

H. S. Black (A'23, M'33) member of the technical staff, Bell Telephone Laboratories, Inc., New York, N. Y., has received the award for best paper in theory and research in the 1934 A.I.E.E. national prizes, for his paper, "Stabilized Feedback Amplifiers." Mr. Black was born at Leominster, Mass., in 1898 and received the degree of bachelor of science in electrical engineering at Worcester Polytechnic Institute. He joined the engineering department of the Western Electric Company at New York in 1921. This department later became the Laboratories. Mr. Black has participated in the development of many aspects of carrier telephone systems, including repeaters and line filters, and is the inventor of the amplifier described in his paper. In recent years he has had charge of a group devoted primarily to carrier repeater development. Mr. Black has written other technical papers, and is a co-author of a previous Institute paper on a carrier telephone system for short toll circuits.

J. R. Meador (A'34) electrical engineer, General Electric Company, Pittsfield, Mass., has been awarded the 1934 A.I.E.E. national prize for initial paper, his contribution being "Calibration of the Sphere Gap." Mr. Meador was born at Dallas, Texas, in 1905 and received the degree of bachelor of science in electrical engineering at Texas Agricultural and Mechanical College in 1927, obtaining his master's degree the following year. He then entered the testing department of the General Electric Company, and in 1930 transferred to the power transformer department, where he spent 2 years in the high voltage engineering laboratory. He is engaged at present in research and development relating to the cooling and insulation of transformers.

I. E. Moultrop (A'10, M'12, F'29) chief engineer and superintendent of construction bureau, Edison Electric Illuminating Company of Boston, Mass., has been elected a trustee of Northeastern University, Boston, and was appointed a member of the visiting committee by President Speare of the university. Mr. Moultrop has been a member of the Institute's power generation (formerly power stations) committee since 1916, and has served on the automatic stations committee since 1930. He has also been active on several other committees in recent years.

H. S. Hamilton (M'24) telephone engineer, Bell Telephone Laboratories, Inc., New York, N. Y., has received honorable mention in the 1934 A.I.E.E. national prize awards for initial paper, for his paper "Wide-Band Open-Wire Program System." Mr. Hamilton was born at Marblehead, Mass., in 1893 and received the degree of bachelor of science in electrical engineering at Tufts College. From 1916 to 1934 he was employed by the American Telephone and Telegraph Company in transmission development work, and since 1934 has been in the transmission development department of the Laboratories. He was first engaged particularly in repeater development, and during 1918 directed a field group in a campaign to improve the service between New York and Washington, D. C. Following this Mr. Hamilton directed the unloading of transcontinental circuits and equipping them with new repeaters. Since 1923 he has been closely associated with the development of circuits for radio program transmission, among the more recent projects being the wide band program system for open wire lines inaugurated in 1931 and the special 15 kilocycle circuits between Philadelphia, Pa., and Washington in 1933 for the demonstration of auditory perspective, on which he prepared an article for the *Bell Telephone Quarterly*. Recently Mr. Hamilton has been engaged in development of carrier telephone systems for open wire circuits.

J. V. Lamson (A'29) instructor in the college of engineering, University of Washington, Seattle, has received honorable mention in the 1934 A.I.E.E. national prize awards for initial paper, for his paper "Trolley Wire Lubrication Improved." He was born in Illinois in 1902, and after graduation from the University of Washington in 1926 worked in the test department of the General Electric Company for almost 2 years, applying a considerable portion of the time in the electric railway and heavy machinery fields. For the following 2 years he was an assistant engineer in the electrification department of the Chicago, Milwaukee, St. Paul and Pacific Railroad at Seattle, Wash., where he became interested in contact line and current collection problems. In 1930 he became an instructor in the department of general engineering at the University of Washington. Facilities in the laboratory made possible the study of current collection in heavy traction systems which led to the preparation of his paper. Mr. Lamson is at present, during the summer, making a study of current collecting devices for the Ohio Brass Company.

H. S. Vassar (A'06, M'18) laboratory engineer, Public Service Electric and Gas Company, Irvington, N. J., has been nominated for president of the American Society for Testing Materials. Mr. Vassar, a graduate of Pratt Institute, Brooklyn, N. Y., has been in charge of electrical, mechanical, and chemical testing for the company since 1911, having previously been with the United Electric Company and the Public Service Railway Company, both in Newark, N. J. He was a member of the Institute's electrophysics committee 1920–21, and of the instruments and measurements committee in 1920 and 1922–25. For the past year he has been vice president of the American Society for Testing Materials, of which he has been a member since 1915, and is active in the work of the committee on electrical insulating materials, serving as its chairman 1926–30.

W. B. Sanford (A'04, M'30) plant manager, Bell Telephone Laboratories, Inc., retired from the laboratories on May 1, 1935, after more than 31 years of active service. In 1901 Mr. Sanford entered the factory engineering department of the Western Electric Company upon the completion of the mechanical engineering course at Cornell University. Although he left the department 2 years later, he returned in 1905 and in 1909 was appointed factory engineer, in charge of plant operation and construction. In 1913 he was given supervision of the shop departments, and was transferred to the general purchasing department in 1915. During the war period he superintended the manufacture of vacuum tubes for government use, and since then has superintended practically all physical alterations in the laboratories' building.

A. N. Goldsmith (M'15, F'20, and Life Member) consulting engineer, New York, N. Y., has had the honorary degree of doctor of science conferred upon him by Lawrence College at Appleton, Wis. The citation made by President Wriston of the college stated that the degree was in part conferred "in recognition of the unique place which Doctor Goldsmith has made in his chosen field." Doctor Goldsmith is a past-president of the Institute of Radio Engineers and of the Society of Motion Picture Engineers and is a member of numerous engineering and scientific societies.

H. E. Ives (F'29) director, electro-optical research, Bell Telephone Laboratories, Inc., New York, N. Y., has been appointed a fellow for research in color science at the Fogg Art Museum of Harvard University, Cambridge, Mass. Doctor Ives was formerly in charge of experimental work in airplane photography for the aviation section of the U.S. Signal Corps, and is the holder of the John Scott medal for pioneer work in electrical telephotography and television. He served on the Institute's committee on production and application of light 1932–34.

J. E. Allen (A'21) chief of tests, Pennsylvania Water and Power Company, Baltimore, Md., with his co-author G. J. Gross (A'30) has been awarded a James H. McGraw prize by the Edison Electric Institute for one of the 3 most meritorious papers on any engineering or technical subject relating to the electric light and power industry during the year. Mr. Allen was a member of the A.I.E.E. protective devices committee 1929–31.

G. J. Gross (A'30) test engineer, Pennsylvania Water and Power Company, Baltimore, Md., shares with his co-author J. E. Allen (A'21) a James H. McGraw prize awarded by the Edison Electric Institute for one of the 3 most meritorious papers on any engineering or technical subject relating to the electric light and power industry during the year.

M. L. Waring (A'29) system engineering department, New York Edison Company, New York, N. Y., has been awarded a James H. McGraw prize by the Edison Electric Institute as author of one of the 3 most meritorious papers on any engineering or technical subject relating to the electric light and power industry during the year.

Obituary

Orville Hiram Ensign (A'04, M'05, F'13, and member for life) one of the Los Angeles Section's most prominent members, died at his home in Pasadena, Calif., June 1, 1935. Mr. Ensign was born at Ithaca, N. Y., July 8, 1863. After completing 2 years of work in the course of "mechanical arts" with the class of 1884 at Cornell University he was, until 1893, variously employed by the Edison United Electric Company of New York City on construction work, and by the General Electric Company, Schenectady, N. Y., successively as machinist, draftsman, in charge of railway motor test work, and finally for $2^1/_2$ years as chief inspector for the factory. In 1893 Mr. Ensign moved to California as consulting engineer for the Redlands Electric Light and Power Company in connection with the completion and the placing in service of the "first 3 phase power transmission plant in the United States," the historic Mill Creek plant near Redlands, Calif. During 1894–95 Mr. Ensign was electrician and superintendent of motive power for the Pasadena and Los Angeles Electric Railway and the Los Angeles and Santa Monica Electric Railway, constructing and operating the former and partially constructing the latter. From 1896 to 1904, Mr. Ensign served as electrical and mechanical engineer for the Redlands Electric Light and Power Company and its successors, the Southern California Power Company and the Edison Electric Company (now the Southern California Edison Company, Limited). Mr. Ensign had entire charge of the design and construction of the plants built by these 3 companies, and in 1896 undertook the development of an 83-mile 33,000-volt transmission line from Santa Ana Canyon near Redlands to Los Angeles, the first "long distance" high voltage polyphase line. In 1904 Mr. Ensign became chief electrical engineer for the U.S. Reclamation Service, which position he held until 1915 when he retired to assume private practice as a consulting engineer in Los Angeles. Also at that time Mr. Ensign founded the Ensign Carburetor Company of which at the time of his death he was president and chief engineer. He retired from general consulting practice in 1927. One of the most notable services rendered by Mr. Ensign was his membership on the board of consulting engineers for the bureau of power and light of the City of Los Angeles, which was actively used during the formative and construction period of the bureau's hydroelectric and distributing systems from 1910 to 1921.

Edward Allen Colby (A'89, M'89, and member for life) consulting engineer and secretary, Baker and Company, Inc., Newark, N. J., died June 2, 1935. He was born at St. Johnsburg, Vt., August 1, 1857, and entered the Sheffield Scientific School of Yale University in 1877, receiving the degree of bachelor of philosophy in 1880. For a short time he taught natural science, and in 1881 was employed by the United States Electric Lighting Company at New York, N. Y., installing the first incandescent lighting on Hudson River ferryboats. The following year he became assistant to Edward Weston (A'84, M'84, HM'33, past-president, and member for life) having charge of the lighting department in the laboratory at Newark, N. J. In 1887 Mr. Colby invented an induction electric furnace for the melting of metals, which is the basis of the present electric steel melting industry. In recognition of this invention he was awarded a medal and diploma by the Franklin Institute. A process for the melting of platinum was perfected by him in 1893. Mr. Colby had left Newark in 1887, but returned to the Weston Electrical Instrument Company in 1889. About 1900 he became chief engineer and superintendent of the Baker Platinum Works in that city, retiring from this position in 1930, although he continued as consulting engineer and secretary until his death. Mr. Colby was also a member of the American Chemical Society, Society of Chemical Industry, and American Electrochemical Society.

Lawrence Dorsy Bale (A'10, M'26) superintendent of power, Cleveland Railway Company, Cleveland, Ohio, died May 16, 1935. He was born at Louisville, Ky., January 22, 1882, and studied electrical engineering at Rose Polytechnic Institute. He was employed by the Western Union Telegraph Company in 1899 at Louisville, and in 1901 went to St. Louis, Mo., where he was employed by the United Railways Company. In 1908 he was employed in Cleveland, Ohio, by the Municipal Traction Company, later the Cleveland Railway Company. While superintendent of substations for this company Mr. Bale made an extensive study of automatic substations, and in 1919 the first automatic substations for metropolitan service were installed. In 1923 the first comprehensive remote supervisory control system was designed and installed in connection with these substations. Mr. Bale was appointed superintendent of power in 1925. He was the author of an Institute paper on automatic substations and at the time of his death was a member of the automatic stations committee of the Institute, on which he had served since 1928. During 1922–23 he was chairman of the Cleveland Section, and since then had served on the Section's advisory board. Mr. Bale was also a member and past-president of the American Transit Engineering Association, now the American Transit Association.

Talbot Grant Martin (F'32) president, Associated Electric Laboratories, Inc., Chicago, Ill., died April 10, 1935. He was born in Cumberland County, Pa., October 6, 1865, and in 1889 entered telephone work with the Chicago Telephone Company. In 1893 he became connected with the Strowger Automatic Telephone Exchange, a manufacturing company, and from 1901 to 1931 was with the Automatic Electric Company and Automatic Electric Incorporated. In 1931 he became vice president and director of development and research of Associated Electric Laboratories, Inc., and subsequently president. Mr. Martin had been actively engaged in the design of Strowger automatic telephone systems since 1893, and was recognized as a leading authority in this work. In the period from 1904 to 1926 there were issued to him 105 United States patents covering telephone systems and apparatus, representing many important practical advancements. The success of the Strowger automatic system, which is widely used in the United States and foreign countries, is credited largely to his inventive genius. Among his developments were arrangements for trunking between manual and automatic exchanges and a system for transmitting music over subscribers' lines which would be cut off by a telephone call.

Charles Frederick Lacombe (A'06, M'09, F'13) consulting engineer, Babylon, N. Y., died May 26, 1935, one day before his seventieth birthday. He was associated with W. S. Leffler (A'24) in a consulting practice with headquarters in New York, N. Y. Mr. Lacombe was born at New York May 27, 1865, and graduated from the Columbia University School of Mines in 1885. After several years of mining work in western states he was engaged in enlarging and operating an electric light plant in Colorado, and at this time, in 1890, formed the Mountain Electric Company, for which he acted as president, general manager, and electrical engineer. The company erected a number of electric power plants in Colorado, New Mexico, and Utah, and with the development of long distance transmission about 1895 built some of the first long lines. In 1901 a plant he designed for street lighting in Denver, Colo., was completed, and shortly afterward Mr. Lacombe went to New York, where he took charge of the lighting bureau of the city in January 1903. Other